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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/496,771	02/03/00	BELL S	37070/198653

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EXAMINER	
ZEMAN, R	
ART UNIT	PAPER NUMBER
1645	10

DATE MAILED: 04/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/496,771	Bell et al.
Examiner	**Art Unit**
Robert A. Zeman	1645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Feb 6, 2001* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3, 7, 8, 12-24, 40-43, 47-53, 57, 62-65, 77, and 78* is/are pending in the application.

4a) Of the above, claim(s) *7, 8, 12-16, 19-24, and 51-53* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3, 17, 18, 40-43, 47-50, 57, 62-65, 77, and 78* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the term "antigenic" includes viral, bacterial and fungal proteins and hence would not present an undue burden on the Examiner since the Examiner would have to search "antigenic material" with the elected invention. This is not found persuasive because the term "antigenic" is used as an adjective to further delineate a group of proteins. In the context of the claims, the term "antigenic viral proteins" differentiates the claimed proteins from all viral proteins. Use of the adjective "antigenic" does not obviate the fact that each group represents a patentably distinct invention. Each having differing chemical, biochemical and immunological properties and differing issues regarding enablement of said inventions. Nor does it obviate the fact that each group would require a non-overlapping search. Consequently, the claims will be examined as outlined in the restriction requirement outlined in Paper No. 4 with the exception of claim 53 which has been amended as to read on a non-elected invention and, therefore, has been withdrawn from consideration.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1, 8, 12, 14-17, 41-42 and 52-53 have been amended. Claims 4-6, 9-11, 26-39, 44-46, 54-56, 58-61 and 66-76 have been canceled. Claim 78 has been added. Claims 1-3, 17-18, 40-43, 47-50, 57, 62-65 and 77-78 are pending and currently under examination. Claims 7-8, 12-16,

19-24 and 51-53 have been withdrawn from consideration. All pending claims will be examined according to the limitations outlined in the restriction requirement of Paper No. 4.

Claim Objections Withdrawn

The objection to claim 42 for failing to refer to preceding claims in the alternative is withdrawn in light of the amendment thereto

Claim Rejections Withdrawn

The rejection of claims 3, 50, 53 and 57 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the term "partially coated" is withdrawn. Applicant's arguments have been fully considered and found to be persuasive.

The rejection of claim 17 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of an "or" and an "and" is withdrawn in light of the amendment thereto.

The rejection of claim 47 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the term "reacting" is withdrawn. Applicant's arguments have been fully considered and found to be persuasive.

The rejection of claim 53 under 35 U.S.C. 112, second paragraph, is withdrawn. While claim 53 is still dependent on a nonelected claim, it has been amended so that it now reads on a non-elected invention. Consequently claim 53 has been withdrawn from consideration.

Claims Rejections Maintained

35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The rejection of claims 1-3, 17, 40-43, 47-48, 62-65 and 77 are rejected under 35 U.S.C. 102(b) as being anticipated by Relyveld (U.S. Patent 4,016,252-- IDS-6) is maintained for reasons of record.

Applicant argues:

1. Relyveld does not disclose particles that are "substantially smooth"
2. Every element must be taught by a reference in order to anticipate a claim.
3. Colloidal character does not mean or infer a "substantially smooth" particle.
4. There is no basis for presuming that the particles of the claimed invention would inherently form in the gel disclosed by Reyveld, since the particles themselves and the methods for making the particles are different.
5. The method of making the particles as disclosed by Reyveld, would result in particles larger than those claimed in the instant invention.
6. The particles of the instant invention and those disclosed by Reyveld are different since they serve a different function (intended use).

7. Relyveld discloses the preparation of adsorbed vaccines and incorporates a series of washing steps and has no unbound antigenic material associated with the vaccine preparation. The instant invention does not have any washing steps and may have unbound antigenic material associated with the vaccine preparation.

8. The vaccine preparation disclosed by Relyveld requires purification. The vaccine of the instant invention does not.

9. The particles of the instant invention do not require the antigenic materials to be bound. The particles as disclosed by Relyveld do.

Applicants arguments have been fully considered and are deemed to be non persuasive.

The rejected claims are drawn to calcium phosphate particles with a diameter ranging from 300 nm to 4000 nm that are optionally coated (either partially or fully) with an antigenic material (viral in origin). Said particles are used in a vaccine composition comprising said particles and an pharmaceutically acceptable carrier or other expient. Claims are also drawn to methods of making said particles and methods of using said particles as a vaccine adjuvant.

In response to applicant's argument that the particles of the instant invention and those disclosed by Reyveld are different since they serve a different function (an adjuvanting vaccine vs. and adsorbing vaccine), a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the

intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the presence or absence of washing steps, the necessity for purification and whether the antigenic material needs to be bound to the particles) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the method of making the particles disclosed by Reyveld would result in particles larger than those claimed in the instant invention, Relyveld discloses that his gel "exhibits a marked colloidal character. It is well known in the art that colloid is defined as "a substance consisting of very tiny particles that are between 1 nm and 1000 nm in diameter and that are suspended in a continuous medium, such as a liquid, a solid, or a gaseous substance" (Academic Press Dictionary of Science and Technology, Online edition, PTO-892). Additionally, as pointed out Applicant, Reyveld states his particles are "considerably finer than those hitherto known". This is in direct contrast to Applicants assertion that the methods employed by Reyveld would result in larger particles.

In response to Applicant's argument that there is no basis for presuming that the particles of the claimed invention would **inherently form** in the gel disclosed by Reyveld, since the particles themselves and the methods for making the particles are different, it is unclear what

Applicant means by inherently form. However, though the methods for making the particles differ, the particles disclosed by Reyveld meet all the limitations of the claimed inventions. Additionally, the method of making the particles, to the degree has been claimed (claims 47 and 48), is disclosed by Reyveld as well .

Therefore, as outlined in Paper No.7, Relyveld discloses an aqueous gel of calcium phosphate useful for preparation of adsorbed vaccines, prepared by contacting an antigen with the aqueous gel. Relyveld further discloses the methods for making said gel from calcium chloride and sodium phosphate (See example 1) and methods for making said gel in combination with viral vaccines (see examples 2-9) as an adjuvant. With regard to particle size, Relyveld discloses that his gel "exhibits a marked colloidal character. It is well known in the art that colloid is defined as "a substance consisting of very tiny particles that are usually between 1 nm and 1000 nm in diameter and that are suspended in a continuous medium, such as a liquid, a solid, oar a gaseous substance" (Academic Press Dictionary of Science and Technology, Online edition, PTO-892). The aforementioned claims recite the limitation of "substantially smooth". The above cited reference does not disclose these limitations *per se* but in the absence of factual evidence to the contrary, the prior art particles are deemed to anticipate the claimed particles because are disclosed particles of the same composition and the same size and Applicant's specification at page 14 indicates that some surface irregularities are permitted in the claimed "substantially smooth" particles. Consequently, the Relyveld anticipates all the elements of the claimed invention. Where the claimed and prior art products are identical or substantially identical in

structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562, F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. *In re Spada*, 911 F2.d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted only by evidence showing that the prior art products do not necessarily posses the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. Applicant has presented no evidence that the claimed particles are any different from Relyveld's particles.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

The rejection of claims 1-3, 17, 18, 40-43, 47-48, 62-65 and 77-78 under 35 U.S.C. 103(a) as being unpatentable over Relyveld (U.S. Patent 4,016, 252-- IDS-6) in view of Kossovsky et al. (U.S Patent 5,462,750 -- IDS-6) is maintained for reasons of record.

Applicant argues:

1. Reyveld does not disclose the use of EBV, HIV, HPV, HSV, pox or influenza viral proteins as antigenic material.

2. Examiner asserts Kossovsky et al. disclose biologically active particles with diameters of less than 1000 nm which are coated with various viral proteins. Sources of said viral proteins include EBV, HIV, HPV, HSV, pox or influenza viruses.

3. Examiner asserts that since the particles of Reyveld and Kossovsky et al. are similar with regard to size and function, it would have been obvious to use the viral proteins of Kossovsky et al. with the particles of Reyveld.

4. There would be motivation to combine the disclosures of Reyveld and Kossovsky et al. since the functionalities of the two disclosed particles are different: Reyveld discloses a gel for adsorbing vaccines, Kossovsky et al. disclose a viral decoy.

5. The preparation methods disclosed in the cited references are different.

Applicants arguments have been fully considered and found to be non-persuasive.

The rejected claims are drawn to calcium phosphate particles with a diameter ranging from 300 nm to 4000 nm that are optionally coated (either partially or fully) with an antigenic material (viral in origin). Said particles are used in a vaccine composition comprising said particles and an pharmaceutically acceptable carrier or other expient. Claims are also drawn to methods of making said particles and methods of using said particles as a vaccine adjuvant.

In response to Applicant's argument that the preparation methods disclosed in the cited references are different, though the methods for making the particles differ, the particles of the combined disclosures of Reyveld and Kossovsky et al. meet all the limitations of the claimed inventions. Additionally, the method of making the particles, to the degree has been claimed (claims 47 and 48), is disclosed by the combined references as well .

In response to applicant's argument that there would be no motivation to combine the disclosures of Reyveld and Kossovsky et al. since the functionalities of the two disclosed particles are different: Reyveld discloses a gel for adsorbing vaccines, Kossovsky et al. disclose a viral decoy., a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Therefore, as outlined in Paper No. 7, Relyveld discloses an aqueous gel of calcium phosphate useful for preparation of adsorbed vaccines, prepared by contacting an antigen with the aqueous gel. Relyveld further discloses the methods for making said gel from calcium chloride and sodium phosphate (See example 1) and methods for making said gel in combination with viral vaccines (see examples 2-9) as an adjuvant. With regard to particle size, Relyveld discloses that his gel "exhibits a marked colloidal character. It is well known in the art that colloid is defined as "a substance consisting of very tiny particles that are usually between 1 nm and 1000 nm in diameter and that are suspended in a continuous medium, such as a liquid, a solid, oar a gaseous substance" (Academic Press Dictionary of Science and Technology, Online edition, PTO-892). Relyveld differs from the claimed invention in that he does not disclose the use of EBV, HIV, HPV, HSV, pox or influenza viral proteins as the previously described antigenic material. Relyveld's particles are generally applicable for adsorbing antigens, including viral proteins. Kossovsky et al. disclose biologically active particles with diameters of less than 1000 nm which are coated with various viral proteins. Kossovsky et al further disclose that suitable sources for the viral proteins include EBV, HIV, HPV, HSV and pox viruses (see column 5, lines 54-58). Since the particles disclosed by Relyveld and Kossovsky et al. are similar with regard to size and function, it would have been obvious to use the viral proteins disclosed by Kossovsky et al. with the particles disclosed by Relyveld as to derive the benefit of the readsorbtive property of said particles. Kossovsky as cited to provide for additional viral proteins

Conclusion

No Claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (703) 308-7991. The examiner can be reached between the hours of 7:30 am and 4:00 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, Donna Wortman, Primary Examiner can be reached at (703) 308-1032 or the examiner's supervisor, Lynette Smith, can be reached at (703)308-3909.

DONNA WORTMAN
PRIMARY EXAMINER

Robert A. Zeman

April 19, 2001